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Report of the

Task Force on Fostering a Sustainable Salmon Farming Industry for Atlantic Canada

April 2005

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1. Executive Summary

A task force led by the New Brunswick Department of Agriculture, Fisheries and Aquaculture (NB DAFA) and Fisheries and Oceans Canada (DFO) was established in cooperation with Business New Brunswick (BNB), Atlantic Canada Opportunities Agency (ACOA), Agriculture and Agri-Food Canada (AAFC), Nova Scotia Department of Agriculture and Fisheries (NS DAF), Newfoundland and Labrador Department of Fisheries and Aquaculture (NL DFA), and the New Brunswick Salmon Growers Association (NBSGA) with the mandate of the task force to review and report on the financial state of the salmon farming industry in Atlantic Canada, identify options and provide recommendations regarding; a) programming requirements to stabilize the industry b) initiatives to respond to market challenges and c) requirements to enhance a sustainable salmon and alternate finfish species industry.

The main challenges and recommendations are summarized as follows:

The current farm management system of the salmon farming industry in New Brunswick has evolved over time as a function of individual site characteristics, growth of operations and the need to change to single year-class farming in an effort to manage Infectious Salmon Anemia (ISA). The current system needs to evolve further, with a view to enabling market driven harvesting while maintaining biosecurity precautions already established.

The Atlantic Canadian salmon farming industry faces a significant challenge in the market place in terms of foreign competition, negative publicity, and production-related constraints. It does, however, have strengths, such as proximity to the main markets of the eastern US, on which it can build to ensure long-term survival and prosperity. There needs to be a concerted effort in the area of markets and marketing for the industry to be successful.

The current Memoranda of Understanding between Canada and the provinces and territories are becoming obsolete and no directed federal programs exist to aid the industry. Negotiation of an Aquaculture Framework Agreement (AFA), complemented by a series of Bilateral Agreements is being pursued under the direction of the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) and will seek to address the main areas of updating governance and programming in support of the industry.

The development of alternate finfish species for culture in Atlantic Canada has been seriously impacted by both a lack of available pre-commercial development funding and the current financial situation of the salmon farming industry. Commercial culture of these alternate species represents an important economic and employment opportunity for Atlantic Canada. To date, significant investment has been made on the part of both industry and government. This investment and opportunity stands to be lost to other jurisdictions if appropriate programming and funding is not developed to complete the work towards commercialization.

The Atlantic salmon farming industry is in need of some form of short-term government financial intervention. This assistance is of an urgent nature and requires action within the next several weeks.

1.1 Immediate Recommendations:

1.1.1 Requirement for Emergency Funds

That sources of immediate financial assistance need to be pursued, potential distribution mechanisms identified and assistance delivered within the next several weeks.

1.2 Mid to Long Term Recommendations:

1.2.1 Reorganization & Restructuring

That governments and industry work collectively to facilitate the development of a system framework, which enables market driven harvesting, while respecting environmental and socio-economic sustainability.

1.2.2 Marketing Farmed Salmon – 2005 and beyond

That governments assist the Atlantic Canadian salmon farming industry in the development of a marketing strategy that takes maximum advantage of the main strength of proximity to market, thus allowing access to high end fresh salmon markets, as well as looking at opportunities in potential new markets

1.2.3 The Need for an Aquaculture Framework Agreement

That the primary elements of an AFA would include:

- Financing and Business Risk Management
- Environmental Stewardship (farm management planning)
- Food Safety and Traceability
- Marketing, labelling and branding
- National Aquatic Animal Health Partnership
- Science, Innovation, Diversification and Value-adding
- Wharf infrastructure
    - That, as part of the AFA, DFO acknowledges the aquaculture industry as a legitimate user of harbour facilities by including the needs of the industry in the mandate of the Small Craft Harbour Branch.
    - That the pre-existing working group, established under the Aquaculture Task Group of the CCFAM, continue to work on development and implementation of an AFA.
    - That particular emphasis should be placed on expediting the component on business risk management programming.

- That the Science, Innovation, Diversification and Value-adding element of the AFA contain programming to provide support towards pre-commercial development of alternate species in the long term.

1.2.4 Alternate Species

That governments work with industry to develop and approve a financial assistance strategy relating to the pre-commercial development and culture of alternate species, along the lines of Appendix B – Concept for an Alternate Species Commercialization Fund, to assist in the short term.

2. Preface

Aquaculture, salmon farming in particular, is an important industry in many of Atlantic Canada's rural and coastal communities. However, in recent years the industry has faced a number of challenges including disease, weather events, and confusing information in the public domain regarding product safety that has led to serious market challenges. The cumulative effect of these factors is having a crippling effect on the salmon farming industry.

Illustration of Atlantic salmon (*Salmo salar*)

Given the importance of the industry to Atlantic Canada, a task force led by the New Brunswick Department of Agriculture, Fisheries and Aquaculture (NB DAFA) and Fisheries and Oceans Canada (DFO) was established in cooperation with Business New Brunswick (BNB), Atlantic Canada Opportunities Agency (ACOA), Agriculture and Agri-Food Canada (AAFC), Nova Scotia Department of Agriculture and Fisheries (NS DAF), Newfoundland and Labrador Department of Fisheries and Aquaculture (NL DFA), and the New Brunswick Salmon Growers Association (NBSGA). The mandate of the task force was to review and report on the financial state of the salmon farming industry in Atlantic Canada, identify options and provide recommendations regarding; a) programming requirements to stabilize the industry; b) initiatives to respond to market challenges, and c) requirements to enhance a sustainable salmon and alternate finfish species industry. The report and recommendations of the Task Force are submitted to the Deputy Minister's of the government agencies involved. The full Terms of Reference for the task force can be found in Appendix A of this document.

Subcommittees of the task group were formed to focus on specific areas requiring additional attention. A sub-committee of communications personnel from NB DAFA, DFO and ACOA was tasked with preparation of material to inform the general public about the task force. A second sub-committee of personnel from NB DAFA, DFO, ACOA, AAFC, BNB and the NBSGA was formed to identify and investigate market challenges and potential solutions, and a third sub-committee of industry representatives was formed to aid in the development of documents related to industry initiatives.

3. Aquaculture: Past and Present

3.1 Global Growth Industry

It has been said that aquaculture represents a transformative opportunity for the Canadian food production sector as the human population is increasing and the wild fish stocks are, in many cases, stable or on the decline. According to the Food and Agriculture Organization of the United Nations (FAO), two global trends are expected to have a significant impact on fish and seafood consumption – and therefore on aquaculture. First, the global population continues to grow and is expected to increase some 36 percent from approximately 6.1 billion people in 2000 to 8.3 billion people in 2030. Second, global economic growth is enhancing the affluence of many people. Since fish and seafood consumption is proportionate to a population's personal income level, and since the global population is projected to become more numerous and more affluent, the demand for fish and seafood is expected to increase significantly. If population expansion, income growth and dietary changes were the only considerations, the FAO projects total seafood demand would reach 183 million tonnes by 2030.

3.2 Sustainable Food Production

A selection of Atlantic salmon products

Due to supply constraints, it is likely that global seafood consumption will increase to only approximately 150 to 160 million tonnes. However, given that only 25 percent of major commercial fisheries are under-exploited or moderately exploited, almost two-thirds are fully-exploited (47 percent) or over-exploited (18 percent), and 10 percent are significantly depleted or recovering from depletion, most fisheries experts agree that global capture fisheries can only provide 80–100 million tonnes of fish per year on a sustainable basis. Therefore, a global shortfall of approximately 50–80 million tonnes of fish and seafood is projected. Aquaculture output will increase to fill this gap, and Canada should be part of this output.

Over the last 15 years, aquaculture has emerged as an increasingly important contributor helping to supply the global demand for fish and seafood. FAO statistics demonstrate that aquaculture now represents 29 percent of the volume and 38 percent of the value of global fish landings. Moreover, the FAO states that, at its present rate of growth, aquaculture output will surpass beef production by 2010. By 2030, aquaculture is expected to be the dominant source of fish and seafood; and less than one-half of all fish and seafood products consumed will originate from traditional capture fisheries.

3.3 Environmental Sustainability

In 2002, the total area occupied by aquaculture operations in Canada was 30,971 hectares (OCAD, 2002). This is equivalent to an area measuring 17.6 km long by 17.6 km wide, or roughly the size of the core of almost any one of Canada's provincial capital cities.

On this tiny area of our Canadian aquatic resource base, the aquaculture industry produced approximately 24 percent of the value of all Canadian fish landings (fisheries and aquaculture combined). Aquaculture produces new fish biomass on a small, localized portion of our aquatic ecosystem, as compared to the commercial fisheries which remove large amounts of wild biomass from the ecosystem with a certain level of impact on a large portion of the same ecosystem. In fact, aquaculture should be viewed as a good candidate to become a model of sustainable development, contributing towards the long-term protection of Canadian aquatic ecosystems.

Salmon farming has been the object of criticism in Canada over the last several years. Many of these criticisms are unfounded and not based on recent data on the environmental performance of the salmon farming industry, while other criticisms are valid. It is essential to highlight the fact that each salmon farm operation in Canada must undergo an environmental assessment under the Canadian Environmental Assessment Act before being granted federal approval. This, in combination with ongoing federal and provincial environmental monitoring programs, ensures that no unforeseen, significant negative consequences on the environment arise from aquaculture operations.

Although this industry is young (30 years old or less), it has already demonstrated a high level of environmental stewardship and has significantly improved its environmental performance in recent years. Although ongoing improvement is still needed in some areas, this sector has become a model of sustainable development that meets the highest environmental standards.

3.4 The Public Policy Advantage of Farmed Salmon

Modern Canadian society does not expect to feed itself by gathering wild fruit or hunting wild game. Instead, Canadians accept farming as a necessary activity and expect their governments to ensure that it is practised in the most sustainable way possible. Moreover, most Canadians are proud of their agriculture sector and fully support government policies put in place to assist food producers. The Canadian aquaculture sector is also an important food production industry. It continues to provide high quality, safe, and healthy food for domestic and foreign markets, while creating jobs and economic activity in our rural communities thereby maintaining the social fabric of Canada. Aquaculture is sustainable from both a seafood business point of view and a socio-economic perspective. In this regard, support of the industry should be viewed as good public policy.

3.4.1 Economic Development Advantage in Rural Canada

Creating economic wealth in rural Atlantic Canada is a primary and priority objective of all levels of government. Despite this goal, it has been demonstrated many times that this is a difficult prospect given that urban centers offer many advantages for business development.

Aquaculture, and salmon farming in this instance, is a clear exception to this rule. Rural Atlantic Canada is where it must develop. The industry has already proven that it is a dominant economic force providing many opportunities for Atlantic Canadians. It has the potential to provide much more and can be a significant contributor to meeting government's commitment to rural development.

3.4.2 Health Advantage for Canadians

From a health perspective, salmon are a natural source of protein, vitamins, and minerals. This is in addition to salmon being one of the most concentrated sources of Omega-3 fatty acids when compared to other fish and food products. Research has shown a significant correlation between consumption of high Omega-3 fatty acid foods such as salmon, and a reduction in the risk of heart attack and stroke. The research results are so convincing that the American Heart Association recommends healthy adults should consume two servings of fish containing high levels of Omega-3 per week. Given the high costs associated with providing universal health care, effective, non-medicinal ways to reduce risk factors and prevent disease should be a priority for health promotion in Canada. The farming of salmon has contributed to making this healthy product more affordable and readily available on a year-round basis to the average consumer in Canada and other parts of the world.

3.5 Industry Contribution to the Economy of the Atlantic Region

Aquatic farming in Canada has grown significantly over the past twenty years. The industry is currently generating economic activity in the order of $1 billion per year in Canada. In 2001, aquaculture accounted for 12.7 per cent of seafood production and represented 25.2 per cent of the value of the Canadian seafood sector. This sector's contribution to the Canadian economy could rise to $3 billion annually by 2015.

The salmon aquaculture industry started in Atlantic Canada in the Bay of Fundy in 1979. Over the next 26 years, the industry has expanded to generate $239 million in gross domestic product in 2003 and provide employment for 3400 people in Atlantic Canada's rural and coastal communities, earning approximately $99 million in total personal income resulting in $14 million in federal and provincial income taxes. Indirect economic benefits of the industry include those associated with spin-off industries including processing, feed manufacturing, transportation, equipment and vessel manufacturing, veterinary and diving services, along with highly skilled scientific personnel in the regions performing various forms of research and development in support of the industry. Production volume and value in Atlantic Canada from 2000 to 2003 is summarized in Table 1.

Table 1: Salmon Production in Atlantic Canada – 2000 – 2003

Year	Newfoundland and Labrador		Nova Scotia		New Brunswick		TOTAL	
	Volume (t)	Value ('000)	Volume (t)	Value ('000)	Volume (t)	Value ('000)	Volume (t)	Value ('000)
2000	670	4,962	3,425	18,893	29,100	181,500	**33,195**	**205,355**
2001	1,092	5,200	2,614	14,361	33,900	180,010	**37,606**	**199,571**
2002	1,270	6,132	1,951	12,504	38,900	194,500	**42,121**	**213,136**
2003	1,450	6,670	5,210	26,874	33,100	179,000	**39,760**	**212,544**

Note : Amount and value produced on sites and excludes hatcheries or value-added products.

Source: 1) Aquaculture Statistics 2003, Catalogue no. 23-222-XIE, Statistics Canada

2) Nova Scotia Department of Agriculture and Fisheries

3.6 Background on Recent Industry Challenges

The industry's economic performance would undoubtedly have been greater had it not been for several serious challenges faced by the industry beginning with the discovery of Infectious Salmon Anemia (ISA) in the region in 1997. Over the last three years, the industry has been challenged by increased production and competition from Chile, then a rapid increase in the value of the Canadian dollar relative to the American dollar, in addition to a significant decrease in consumer demand triggered by reports and campaigns which question the food safety aspect of farmed salmon products. The cumulative impact of these challenges has served as the root cause of producer losses in the tens of millions of dollars over the past

three years, as well as an anticipated loss in 2005 as effects on volume and market demand are expected to impact the industry this year.

3.6.1 Disease and Weather Related Loss

Both disease and weather events have resulted in the eradication and/or loss of stock with neither adequate available insurance, business risk management programming, nor consistent government compensation. Early maturation of some fish, as well as poor growth during extremely cold winters, has sometimes resulted in the marketing of fish at a less than optimal size, resulting in lower prices per pound than would be given for a full-sized product. Losses associated with ordered eradications in the case of ISA infections have been at the expense of the industry since the last Federal/Provincial government disaster financial assistance program, which covered 1998 through to July of 2001.

3.6.2 Negative Media Attention and Subsequent Effects on Consumer Demand

Consumer reaction to reports published in 2004 citing high levels of Polychlorinated Biphenyl's (PCBs) and other chemicals in farmed fish, in addition to the ongoing campaigns of environmental non-government organizations (ENGOs) which question the food safety of farmed salmon products, has had a significant negative effect on the demand for farmed salmon in various markets. The white table restaurant trade in the United States (US), a niche market served by the Atlantic Canadian industry, has been particularly affected as top chefs are concerned about the integrity of their business. Sales in specific areas of Canada were also markedly affected, with sales in Southern Ontario reportedly dropping up to 50% for several months.

3.6.3 Chilean Competition

Chile is a low-cost producer with substantial advantages in labor and feed costs. Chile exported 75% of its 500,000 tonnes production to the US and Japan in 2004. While some of its cost advantages are offset by their distance to the key fresh fish market in America, Chilean producers continue to ship in excess of 1700 tons per week into the US, mainly in fillet form. The industry continues to integrate its operations diversifying in fish health and value-added production. Chile has aggressively been developing a market share in the EU market, tripling exports to 32,000 tons from 2003 to 2004. However, on February 6, 2005 the EU announced safeguard measures on all salmon imports establishing Minimum Import Prices, as well as import quotas per country with a duty imposed on imports above the quota. This could effect both Chile's and Norway's exports to the EU and result in more product destined for the US market. Chile, however, will be significantly affected by recent spikes in fuel costs as they depend on air cargo into the US.

3.6.4 Environmental Non-Government Organizations

The global aquaculture industry is facing unrelenting pressure from ENGOs that are challenging the industry's environmental commitment and food safety standards. In 2004, the farmed salmon industry in particular came under an attack that focused on high levels of PCBs (Poly-chlorinated biphenyls) and PDBEs (Polybrominated diphenyl ethers) in farmed salmon. Consumers reacted by avoiding farmed salmon and questioning the common knowledge related to the health benefits associated with the product. The wild salmon industry, particularly from Alaska, took advantage and aggressively promoted its product in both the retail and food service markets. Demand was negatively affected for the majority of 2004. Industry and market analysts feel the effects have now abated, however, we can no doubt expect other similar issues to develop in the future.

3.6.5 Trade Consolidation

Consolidation of distributors and end-users (retailers and foodservice operators) combined with the lack of a recognizable brand for the industry results in the pricing power being in the hands of the buyers. The Atlantic Canada product is a premium product and is considered "really fresh" due to our proximity to market, however the trade is not always open to support one source of product over another as it affects their ability to negotiate or substitute products as they see necessary.

3.6.6 Retail Market

The continued emergence of big box stores with seafood counters replacing smaller fish markets has often resulted in untrained staff selling fish. This, combined with better informed consumers, leaves the industry extremely vulnerable to not being able to provide accurate messaging during times of emerging health issues as described above. It has also provided less of an opportunity to promote product origin. However, the new Country of Origin Labeling (April 2005) requirements in the US should assist to promote Canadian product.

3.6.7 Forced Harvests

Forced harvests related to disease or mortalities often result in product being moved to market, not in response to market demand but in order to accommodate production and fish health requirements. The absence of a compensation plan to respond to forced harvests often results in depressing prices, again placing additional purchasing power in the buyers' hands.

Although the relative effects of the above noted challenges vary from year to year, they have clearly had a cumulative negative economic impact on the salmon farming industry in Atlantic Canada. These effects have occurred over a very short period of time and have not given the industry time to appropriately absorb or adjust to any of these shocks.

3.7 Farming of Alternate Finfish Species in Atlantic Canada

While salmon culture has had the greatest success, there has also been considerable research and development in the culture of other finfish species including Atlantic cod, haddock, Atlantic halibut and short nose sturgeon. Commercial development of these species would contribute significantly to the growth of aquaculture and enable the diversification of the salmon farming industry, reducing both the biological and market risks associated with single species production. With proper support, projections indicate that the alternate species industry could be worth close to $120 million annually within the next 5 to 10 years. Job creation in rural Atlantic Canada could exceed 200 full time jobs creating tax revenue for government and economic opportunity for Atlantic Canadians.

Work over the past 10 years has resulted in consistent production of juveniles for sea stocking with peak juvenile production potential of close to 500,000 fish annually. Research trials in on-growing at marine sites and how to improve production efficiencies, as well as broodstock (genetic) development since each of the species are still within one to two generations of their wild counter parts, and fish health require further work in order to achieve commercialization.

4. Industry in Crisis

4.1 Financial Performance and Outlook

4.1.1 Financial Assessment of Industry

Through the auspices of the Task Force mandate, a chartered accounting firm was engaged to quantify the financial effects experienced since 2002 and projected for 2005. Approximately 86% of the operational sites in Atlantic Canada were surveyed.

The results indicate that a significant portion of the industry is challenged by factors beyond its control. In the agricultural sector, programming exists to help terrestrial farmers deal with similar challenges.

A steady drop in retained earnings and shareholder equity is a clear signal of the rising fragility of the sector. It impairs companies' borrowing capacity to finance operations and capital expenditures to keep pace with the competition. A continued erosion of earnings and equity can result in serious consequences: an implosion of the sector resulting in significant job losses.

Since the Task Force was initiated, two hatcheries and two salmon growout companies in Nova Scotia have gone into receivership, and one other hatchery has lost its contract to grow for a New Brunswick company and has no sales on the books for 2006. During the same period in New Brunswick, three marine sites have gone into receivership and at least two hatcheries are now challenged with no sales for 2006.

4.1.2 2005 Stocking Plans and Economic Impacts

It is estimated that approximately 14 million smolt have been stocked annually from 1999 through to 2004 in Atlantic Canada. If production in the State of Maine is included, stocking for the region peaked in 2002 at an estimated 20 million smolt. Annual farmed salmon production (in tonnes) for Atlantic Canada and corresponding farm gate value is depicted in Fig. 1. Values for the years 2005 through 2007 are estimates given stability in the industry and levels of smolt stocked annually in Atlantic Canada remaining close to 14 million; however production for the year 2007 is reflective of the maximum 12 million smolt available for the region in 2005. An additional bar in green reflects the tonnage that may be expected if only seven million of the available smolt are stocked, and the associated value of that production is shown as an additional point. It is noted that smolt stocking numbers are indicated for the associated harvest year and that actual stocking would have occurred two years prior. It is also noted that, while ordered depopulations due to ISA occurred in all of the years indicated, a significantly larger number, approximately three million fish, were ordered eradicated in the fish that made up the 2004 harvest year, therefore resulting in less fish making it to market.

Atlantic salmon smolt

In 2005, total smolt production is down to 13 million with 12 million available for stocking in Atlantic Canada and the remaining one million going to farms in Maine. Given the current financial challenges being experienced by the industry, it is estimated that 40% of the smolt production (five million) is in jeopardy of not being placed at marine sites. If that occurs, the stocking of seven million smolt represents a dramatic decrease of production to 25,600 tonnes and a value of $113,000,000. The potential loss of revenue is illustrated in Table 2.

Figure 1: Annual Production and Farm Gate Value of Farmed Salmon in Atlantic Canada

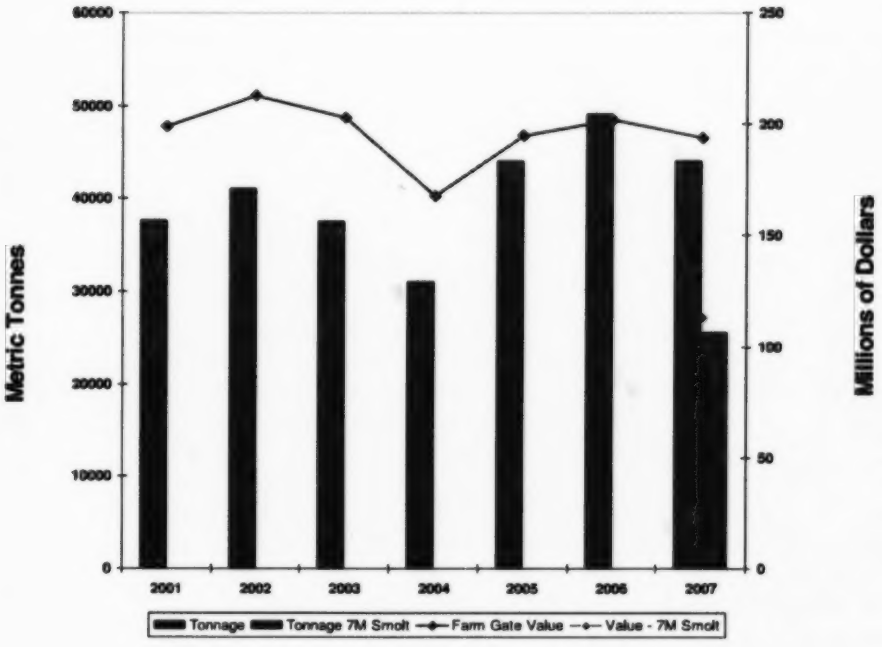

Table 2: Effect of Reduced Atlantic Salmon Smolt Placement in 2005 on Industry Production and Value in 2007

Atlantic Salmon Smolt Stocking	Estimated Harvest (Tonnes)	Estimated Farm Gate Value ($Cdn)
12 000 000	44,000	193,800,000
7 000 000	25,600	113,050,000

Actual hatchery production in 2005 for Atlantic Canada is estimated at 13 million Atlantic salmon from 24 hatcheries and approximately 2.4 million steelhead trout for marine stocking. A summary of hatcheries located in each province and the total production capacity is outlined in Tables 3 and 4.

Table 3: Atlantic Salmon Hatchery Production Capacity in Atlantic Canada

Province	Number of Hatcheries
Nova Scotia	8
Newfoundland and Labrador	2
New Brunswick	21
Total Number of Hatcheries	**31**
Total Production Capacity	**16,000,000**

Table 4: Steelhead Hatchery Production Capacity in Atlantic Canada

Province	Number of Hatcheries
Nova Scotia	4
Prince Edward Island	1
Total Number of Hatcheries	**5**
Total Production Capacity	**2,400,000**

Total annual smolt production capacity is estimated at 16 million (Maine production is not included) based on the 31 hatcheries located throughout the Atlantic Region. Due to the current financial state of a number of hatcheries and the lack of potential sales, actual production could be reduced by 6,350,000, approximately three million less than the already low number available for 2005 spring stocking. Based on this information, Atlantic Canada production of Atlantic salmon and Steelhead trout could be reduced to nine million for 2006.

Loss of market share in the US to Norwegian and Chilean production will undoubtedly be expedited by a concurrent lack of production in Atlantic Canada. Therefore, ensuring that the maximum number of available smolt are transferred to marine sites for grow-out is very important to maintaining market share in the US.

The year 2004 and early 2005 are unique in the industry in that there have been business failures in each of the three Atlantic Provinces which produce salmon. During this period, at least seven business failures have occurred. Prior to this period, business failures were minimal and, in general, there was no such issue within the core of the industry.

Additional companies have the potential to fail if they are unable to secure financing for the placement of smolt this spring to continue their business. In the current financial situation, it has become difficult both to find potential buyers for the assets (i.e. marine sites) of failed companies, or entities willing to finance the operating lines required for the next two year grow out cycle. The collateral damage of business failures is significant for all companies and may mean that operating lines and cash flow will be under pressure.

4.2 Impact on Support Industries

Ripple effects of lost business, employment and tax revenues will extend to the support industries including processing, transportation, veterinary services, feed and equipment manufacturing, diving, research and more. For example, reduced smolt stocking will result in reduced economies for the feed manufacturers as volume enables them to decrease their operating costs. In addition, some feed companies have extended operating credits to the grow out operations and, as such, some of these may not be collected. While impacts of the above will be felt around the region, the effect will be concentrated in rural coastal communities.

4.3 Impact on Diversification and Industry Growth

This financial pressure has also led to a situation where the industry is no longer able to invest in diversification and new innovative technologies, which are considered pivotal to being on the leading edge of the international aquaculture scene. This has seriously impacted diversification into alternate species including sturgeon, cod, halibut and haddock, where much investment had been made on the part of both industry and government. The move towards development and use of offshore farming technologies has also been affected in this regard. The opportunity lost as a result of this impact on diversification and development of new technologies, is significant.

4.3.1 Alternate Species Development

Production of alternate species in Atlantic Canada thus far has largely been accomplished by private sector partnering with public financing for research. By 2003, operations in the three provinces supported over 130 full time jobs. Government, academia and private sector partnerships had achieved a level of optimism that these species were on the cusp of commercialization and significant growth was imminent.

Completing the pre-commercial development work has resulted in significant financial losses for the hatcheries and marine sites involved. The industry is burdened with carrying the millions of dollars in research costs accrued by the private sector over the past five to ten years, resulting in high cost of producing juveniles. Growout trials in the marine environment have been limited due to lack of financial resources for their undertaking.

The current financial situation of the salmon farming, combined with the lack of dedicated public programming for pre-commercial development, has resulted in swift and significant downsizing of the effort in all of the alternate species. In the halibut sector, the number of juveniles stocked at marine sites dropped from a high of 50,000 in 2003 to zero in 2004. In addition, two of the three halibut hatcheries ceased operations in 2004 due to financial losses. In haddock, where production peaked with fish being stocked at four marine sites, only one site was stocked in 2004 and none will be stocked in 2005. For cod, the number of marine sites stocked remains small, two to three in all of Atlantic Canada, and the development of the region's largest commercial hatchery in Newfoundland has stalled. Research and development activities at NRC Sandy Cove (NS) and the Institut des Zones Côtières in Shippagan (NB) were drastically reduced in 2004.

Haddock aquaculture

In the absence of action, there will be a loss of knowledge regarding production of alternate species as highly trained personnel will find jobs in other jurisdictions, subsequently supporting the development of alternate species production in other countries, while Canada is left behind. The halibut sector has already begun to see this effect, with leading personnel leaving to work in the US and the transfer of juveniles out of the country. It is estimated that the number of jobs related to alternate species throughout New Brunswick, Nova Scotia, and Newfoundland has decreased by 50%.

4.3.2 Offshore Technology

Many areas of the inshore, particularly in the Bay of Fundy, have reached the practical limit for farmed fish production given the concentration of ocean-related enterprises in this region. Industry proponents, federal and provincial government departments have jointly studied the potential of higher energy offshore farms in order to identify physical and regulatory challenges and to determine their practicality and economic viability. Preliminary conclusions from research and analysis of both technical and economic practicality of offshore salmon farms confirm that it is a viable concept, indeed that it could be a significant component for the long term sustainability of the salmon farming industry in Atlantic Canada. Moving salmon farms offshore would reduce many of the risks associated with inshore operations. Moreover, the farms could be larger allowing growers to benefit from economies of scale.

In order to realize these benefits, the next phase for offshore salmon farming requires full-scale testing of both the offshore equipment and the performance predictions from business models. However, the current financial state of the industry has restricted its capacity to secure the capital needed to install and to operate a prototype offshore site for a reasonable validation period. The design, engineering and fabrication of the cage, feeding and mooring technology have been performed by local firms that have genuine appreciation for unique local conditions.

Successful demonstration of this concept could provide additional growth opportunities for the industry in Atlantic Canada, as well as create a market for high technology growing and feeding equipment designed and manufactured in this region. Unfortunately, the increasing gravity of the financial crisis gripping the salmon industry has severely curtailed the capacity of the industry to invest in the development of offshore technology, despite its promise and its potential to improve the profitability of salmon farming in Atlantic Canada.

Offshore Atlantic salmon rearing cages

4.3.3 Technological Advancement

The culture of Atlantic salmon is a relatively new industry that emerged following initial trials that were undertaken in the late 1970s. Major advances in many areas, including feed conversion, technology development, improved environmental performance, broodstock development, and fish health management (vaccines and diagnostics), has occurred over the last thirty years. In order for the industry to remain competitive, it is important that investments in these areas continue to be made by both the private and government sector. Investments in these areas will enable the Atlantic Canadian salmon farming industry to improve profitability and stay on the leading edge.

4.4 Impact on Rural Communities

As stated earlier in this report, just about all of the direct activity related to aquaculture, salmon farming and alternate species development occurs in rural and coastal communities, which remain a vital part of Atlantic Canada's economy. A significant contraction of the industry would have a targeted impact on those communities, many of which have come to rely upon fish farming as their primary economic base. Three examples of such communities are provided below to illustrate how the fish farming industry has grown to be so important and what could be lost if the industry is not stabilized.

4.4.1 Charlotte County in New Brunswick

Beginning in the mid-1980s, Charlotte County, in southwest New Brunswick, experienced significant economic growth due to salmon farming. While this rural area was previously considered to be one of the poorest regions in New Brunswick, the county is now a significant hub for Canadian aquaculture production. In fact, its economic growth is so significant that it has become necessary to recruit workers from outside the region.

Several statistical comparisons illustrate this point[1]. From 1986 to 2001, Charlotte County's participation rate increased by 3.8%, just slightly behind the growth in participation rate of the larger Moncton area. Over this same period, employment grew by almost 24%, not far behind employment growth in New Brunswick's larger cities. More importantly, the percentage of individuals with employment income having worked full-time and full-year grew by almost 27% from 1986 to 2001, the second highest rate of growth in New Brunswick. More importantly still, the percentage point drop in Charlotte County's unemployment rate was the largest in New Brunswick during the 1986-2001 period.

[1] Desjardins, P.-M. A Socio-Economic Profile of Atlantic Canada: Characteristics of Rural and Urban Regions, With Implications for Public Policy – A Statistical Appendix. Canadian Institute for Research on Regional Development. March 2005.

Today, several of Charlotte County's largest employers are involved either directly or indirectly in the aquaculture sector[2]. Moreover, aquaculture has accounted for more than 3,000 full-time jobs in the local area, representing up to 25 percent of the entire workforce[3, 4]. In 2000, the salmon farming industry generated direct employment equivalent to 1,683 person-years (PYs) consisting of 19 hatcheries: 157 PYs; 41 farming companies operating 96 marine cage sites: 624 PYs; 10 processing plants: 537 PYs; direct services: 240 PYs; and selling, administration and other: 125 PYs. Direct employment wages, salaries and benefits expenditures were estimated at $47 million[5].

In the related supplies and services industries such as boat building, net and cage manufacturing, machine shops, etc., it is estimated that an additional 2,962 jobs have been created. Assuming the indirect wages are based on the median income from the census data, these positions would add close to $46 million to regional payrolls.

Currently, as many companies in the salmon-farming industry in the region find themselves in a precarious financial situation, much of progress that was made by Charlotte County over the past 20 years is in jeopardy. Several companies in the county have already declared bankruptcy, and a number of employees are beginning to be laid off. A dramatic decline in the industry over the next few months could also lead to a dramatic decline in the local population, which would erode the tax base, and compromise the ability to finance public infrastructure.

4.4.2 Bay D'Espoir, Newfoundland and Labrador

In Newfoundland and Labrador, the Bay d'Espoir / Connaigre Region on the south coast of the island part of the province is the center of salmonid farming. With an abundance of coastline and sites and a history of marine related industry, aquaculture and associated service and supply industries have developed here. In 2004, there were over 300 people employed with 50% of the jobs in production and the remainder employed by the

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[2] Fundy Region Development Commission Inc. On line: http://www.frdc.ca/our_economy.htm . April 24, 2002.

[3] Cooke, G. and L. Stewart. *Presentation to the Standing Committee on Fisheries and Oceans*. Ottawa, Ontario: House of Commons. December 6, 2001. Online: http://www.parl.gc.ca/InfoComDoc/37/1/FOPO/Meetings/Minutes/FOPOmn34%281413%29-E.htm

[4] Atlantic Canada Opportunities Agency (ACOA). News Releases, September 17, 1998. On line: http://www.acoa.ca/e/media/press/press.shtml?958

[5] Stewart, L. *Salmon Aquaculture in New Brunswick. Natural Development of Our Marine Heritage.* Aquaculture Strategies Inc. 2001.

processing and support sectors. Local companies provide diving services, trucking services, management consultants and cage and net manufacturing. Indirect service sectors including local retail stores, restaurants and hotels benefit from business being generated by the local salmonid aquaculture industry.

The aquaculture industry has been around since the early 1990s and, as a result, a highly trained and stationary local labour force has developed in this region. In a knowledge based industry such as aquaculture, local employment opportunities are attracting younger people and contributing to the long-term sustainability of rural communities in this area. In addition, local aquaculture employment has provided opportunities for residents to stay at home and not have to move away for seasonal work, a stark contrast to some other rural communities without a similar economic opportunity.

It is anticipated that in 2005 the industry will expand bringing the positive effects of aquaculture to a larger region. With nearby Fortune Bay identified as the primary area for expansion for the next five to eight years, new communities such as Belleoram and Pool's Cove look forward to experiencing the economic benefits of this industry.

4.4.3 Clark's Harbour, Nova Scotia

Scotian Halibut is a private company that commenced operations in 1998 and established a halibut hatchery in Clark's Harbour and a land-based grow-out facility in nearby Lower Woods Harbour. These facilities produce Atlantic halibut juveniles and fresh Atlantic halibut for the North American market. Scotian Halibut is the largest marine hatchery in Canada and the second largest producer of halibut juveniles in the world. Scotian is also the single largest producer of market halibut in Canada at this time.

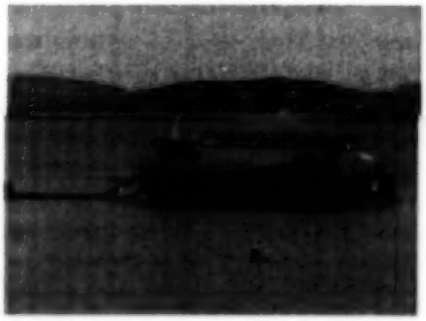
Since its inception, the company has had a significant effect on the local economy. It has contributed to the migration of educated individuals and families to rural Nova Scotia, some of whom were previously living outside of Atlantic Canada. Scotian Halibut has also created employment for people who were previously on welfare as a result of the closure of the groundfish fishery. The company has also actively promoted the development of a high school aquaculture program to help students find careers in industries located in their home communities.

4.5 Harbour / Wharf Infrastructure

The existing Small Craft Harbour (SCH) system was never designed for the vessel or operational load requirements of the aquaculture industry. Safety of all users of the harbour facilities, ability of the wharf structures to withstand heavy loads, competition for space, bio-security for the aquaculture industry and operational

liability issues are a concern of government agencies, local harbour operators and clients alike.

Harbour infrastructure was originally built to accommodate a local inshore fishing industry whose core working vessel is normally a 45-foot, open-decked vessel, while the aquaculture fleet ranges from numerous small open vessels up to specially designed work barges. Since large steel vessels and scows/barges cannot safely berth next to smaller fiberglass or wooden vessels, damage in such instances can be expected.



Feed barge

In some cases, such as in the Grand Manan Island area of New Brunswick, mooring fields are in use in relatively unprotected harbour areas to accommodate larger aquaculture vessels and minimize overcrowded conditions at wharves. There are situations in Newfoundland where a single wharf is used by local fishers to offload fish, by a provincial ferry service and by the local aquaculture companies.

Quantitatively, in the Bay of Fundy, 40,000 tonnes of salmon comes ashore at 10 to 15 wharf sites, compared to a similar tonnage of lobster coming in over some 700 wharves throughout Atlantic Canada. In addition, these same few sites handle 50,000–60,000 tonnes of feed and millions of smolt being transported to cage locations. The movement of such quantities requires thousands of truck and vessel movements, putting new stresses on both berthage and offloading services on the existing busy harbour system. High risk equipment and feed lifts, and heavy point loadings are commonplace in the four larger harbours managed by the Grand Manan Harbour Authority.

As previously identified in this report, the salmon industry is facing critical pressures within the competitive marketplace. However, the availability of adequate harbour facilities is crucial to the success in meeting these challenges and the needs of a growing aquaculture industry.

The Small Craft Harbours Branch, DFO, is responsible for developing, maintaining and managing harbours which accommodate commercial fishing vessels. This mandate and the role of the branch in support of the existing and growing aquaculture industry are under review. Major funding will be required for an expanded mandate to support the aquaculture industry.

It is also possible that some form of cost sharing arrangement with other government agencies and the industry might be deemed most appropriate taking into account existing funding levels and program pressures. Based on past experiences where ACOA and DFO have worked together to put in place required wharf infrastructure for the aquaculture industry, the two departments will discuss appropriate roles for involvement in this area in the context of both DFO's strategy for small craft harbour infrastructure and ACOA's programs and resource availability.

Other activities to try and address the situation include the Newfoundland and Labrador salmonid industry's engagement of a consultant to review the challenges and future marine infrastructure needs of the salmonid sector; and the work of some Harbour Authorities on long term development proposals in consultation with government agencies.

Dipper Harbour, New Brunswick is an example of conflict existing between commercial fishers and aquaculture proponents. A large quantity of lobster is landed at this site and stored in harbour waters. Service and berthage space is limited and commercial fishery users are reluctant to allow aquaculture activities in the harbour in fear of damage to their vessels and lobster cars. Fishers are also concerned with disinfectant products used to clean aquaculture vessels having a negative impact on live stored fish at the harbour. Operational harmony does not exist at this site.

5. Moving Forward

5.1 Farm Management System

The current events and circumstances require the Atlantic Canadian salmon farming industry to commit to action towards stabilization. To foster a market-driven industry, the farm management system of the industry which includes site size, consolidation and fish health management, performance-based environmental standards and codes of practice will require modification. This in turn needs to be reflected in the process of governance, management, and regulation. These changes are required to support production planning for expected market conditions, to strengthen financial position; sustain existing production and provide a solid basis for growth; allow for and support species diversity; support integration with other users of the coastal environment; and to support the development and implementation of long term -industry and corporate planning.

To enable the industry to farm salmon on market-based principles, several areas in the farm management system may require structural reform such as follows:

5.1.1 Site System

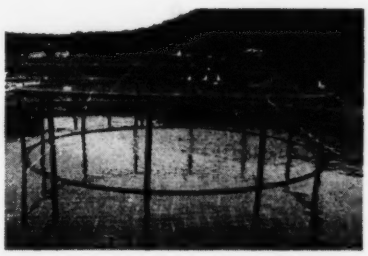
Marine sites need to be organized relative to a system of effective bay management areas based on biophysical environment, risk management (pertaining to fish health and the environment), and infrastructure needs. This system may require three sites per paired, year-class rotation and / or the use of nursery sites in order to support full grow out of salmon, while eliminating holdover concerns, thereby allowing farmers the flexibility to harvest fish on a market schedule rather than a production schedule. In addition, the site system will be developed to consider integration with other coastal resource users.

5.1.2 Site Size

The size of sites will be based primarily on the physical requirements of cages, infrastructure, and operations. An associated performance-based management and regulation system will allow farmers the operational flexibility to maximize the site's physical and environmental potential to grow salmon. Farmers will be responsible for maintaining high levels of environmental site quality and fish health standards.

5.1.3 Consolidation

The structural reform of the industry will require consolidation and/or harmonization of the operation of existing sites within the system to meet the changes required for a market-driven salmon farming industry. The process of consolidation will be implemented with the clear and defined purpose to strengthen the industry's financial position by supporting production planning to meet market needs, improve fish health and environmental management, and improve coastal use integration.



Aquaculture cage

5.1.4 Performance-Based Standards

Performance based standards require clear roles and responsibilities of industry and government and should be designed to meet the following principles: maintenance of environmental quality with operational flexibility; application of a risk-based and science-supported environmental management and regulatory process; multi-jurisdictional inter-government and government-industry cooperation; public accountability and transparency; and to provide a basis for identification of and justification for research and development.

5.1.5 Conclusions

The current farm management system of the salmon farming industry in New Brunswick has evolved over time as a function of individual site characteristics, growth of operations and the need to change to single year class farming in an effort to manage ISA. The current system needs to evolve further, with a view to enabling market driven harvesting while maintaining bio-security precautions already established. Development of a sustainable system in New Brunswick can serve as a model for further development of the finfish industry in other areas of Atlantic Canada where it is not an issue at present.

5.1.6 Recommendation

That governments and industry work collectively to develop a farm management system which supports market driven harvesting while respecting environmental and socio-economic sustainability.

5.2 Marketing Farmed Salmon – 2005 and Beyond

The salmon farming industry of the future in Canada's Atlantic Provinces will need to be a market-driven industry. Several initiatives could be pursued in this regard and are detailed as follows;

5.2.1 Atlantic Canadian Marketing Program

The feasibility of an Atlantic Canada Marketing Program will be investigated by industry. Such an agency is envisaged to have primary responsibility for managing the global marketing of Canada's East Coast farmed Atlantic Canada salmon on a Dressed Head On Basis. The agency would be responsible for establishing a brand program based on country of origin labeling and integrity; developing quality standards; ensuring safety and sustainability through government regulation and monitoring; and establishing public confidence through product traceability.

5.2.2 Marketing Plan

A marketing plan will be developed for Atlantic Canada's salmon farming industry with the primary objectives of increasing consumer demand and maintaining returns to producers. Farmed Atlantic salmon is a significant item in the fresh fish category at retail and food service in those geographic markets most important to Atlantic Canadian salmon farmers. It is essential to differentiate Atlantic Canadian farmed salmon from global competitors if benefits are to accrue to farmers; consumers looking to purchase salmon need a reason to demand salmon from Atlantic Canada. The industry's marketing plan will be developed based on a review of the marketplace: global supply; international and domestic competition, pricing trends and analysis and consumer research.

5.2.3 Marketing Strategy

The industry marketing strategy will be built on industry strengths and positive public perception. It will include an integrated marketing communication program built on salmon product sales and public relations.

To improve product sales there is a need to; 1) differentiate the message sent to consumers based on target marketing through consumer research to understand the appropriate message required, 2) to increase the market share in chain stores with an industry information/education campaign that enables retailers to better understand product and its benefits; and 3) to implement a program to educate and work with customers, chefs, and commercial managers to enhance the image of farmed salmon.

A public relations program will focus on educating and informing the public on the food health, safety and affordability of salmon as well as setting out the context of industry issues to influencers and regulators.

The marketing strategy will promote the Atlantic Canadian competitive advantages in the northeastern American market: freshness of product; reliability of supply; distribution providing consistently better and fresher fish to market; proximity to north-eastern market enabling selection and harvest of product and shipment in two days; lower transportation costs resulting in stable prices for US and Canadian market; and the Canadian reputation as a supplier of high quality seafood

5.2.4 Conclusions

The Atlantic Canadian salmon farming industry faces a significant challenge in the marketplace in terms of foreign competition, negative publicity, and production related constraints. It does, however, have strengths, such as proximity to the main markets of the eastern US, on which it can build to ensure long term survival and prosperity. There needs to be a concerted effort in the area of markets and marketing for the industry to be successful.

5.2.5 Recommendation

That governments assist the Atlantic Canadian salmon farming industry in the development of a marketing strategy that takes maximum advantage of the main strength of proximity to market, thus allowing access to high-end fresh salmon markets, as well as looking at opportunities in potential new markets.

5.3 The Need for an Aquaculture Framework Agreement

After years of steady growth in a tough climate, Canadian aquaculture growth and production has started to decline and diversification into alternate species has stalled. In contrast, the share of our primary market (USA) being taken by our competitors such as Chile has increased.

Memoranda of Understanding between Canada and the Provinces and Territories, some of which were developed in the late 1970s, are becoming obsolete as the aquaculture industry grows in response to technological and market challenges. What few directed federal programs that did exist no longer exist.

Against this backdrop, Ministers of fisheries and aquaculture have agreed to consider a new approach. To ensure national consistency and national purpose, the Ministers are considering negotiating an Aquaculture Framework Agreement (AFA), complemented by a series of Bilateral Agreements between Canada and each provincial and territorial jurisdiction.

Key objectives of an AFA include i) renewing and modernizing the governance of the industry by both levels of government; ii) helping the industry to remain competitive through consolidation, harmonization, innovation and diversification, and by moving from a production-driven to a market-driven industry, and, iii) helping industry to further improve its environmental performance.

The AFA would comprise two main pillars – Governance Renewal and Programming in Support of a Market-Driven Approach.

5.3.1 Pillar One - Governance Renewal

A framework agreement document would be developed to address common aspects of aquaculture throughout the country. In effect, this would provide a set of national standards for the conduct of aquaculture in Canada. Elements would include:

- Harmonized approval process (siting)
    - Environmental assessments
    - Navigation issues
    - Service standards
    - Single window approach
    - Zoning
- Harmonized Compliance/Enforcement/ Reporting/Monitoring
    - Nutrient / waste management
    - Containment
    - Water quality and use
    - Therapeutic agents use
- Harmonized Consultation and Dispute Resolution Mechanism

- Fish Health
    - National Aquatic Animal Health Program (NAAHP) Implementation
- Food Safety
    - Canadian Shellfish Sanitation Program (CSSP)
    - Introductions and Transfers (I&T) of Aquatic Organisms
- Information Sharing
    - Statistics & database
    - Invasive species
    - Fish health

5.3.2 Pillar Two - Programming in Support of a Market-Driven Approach

Canadian finfish aquaculture has been characterized as focusing on a single species (salmon) in a single market (USA) and in a single form (Fresh Whole Dressed). In 2003 the United States imported US$913 million of farmed salmon from around the world to meet consumer demand. In recent years exports of farmed Atlantic salmon to the United States from Atlantic Canada have declined in both volume and value. Competition from Chile, Norway and the United Kingdom is increasing. As previously discussed, there are various reasons for the decline in Atlantic Canada sales. Programming aimed at minimizing the impacts of natural perils through business risk management approaches and encouraging sound on-farm environmental practices are badly needed in order for the Canadian aquaculture industry to achieve its potential.

5.3.3 Potential Program Elements

- Financing and Business Risk Management (BRM)
- Environmental Stewardship (farm management planning)
- Food Safety and Traceability
- Marketing, labelling and branding
- National Aquatic Animal Health Partnership
- Science, Innovation, Diversification and Value-adding
- Wharf infrastructure

Success in these efforts will provide a sound basis from which aquaculture can thrive. A successful AFA will result in rebuilt confidence by Canadian and international consumers in the products from seafood farming, stop and reverse the decline in production and profitability, and re-establish Canada as a world leader in sustainable aquaculture production.

5.3.4 Conclusion

The current Memoranda of Understanding between Canada and the Provinces and Territories are becoming obsolete and no directed federal programs exist to aid the industry. Negotiation of an AFA, complemented by a series of Bilateral Agreements is being pursued under the direction of the CCFAM and will seek to address the main areas of updating governance and programming in support of the industry.

5.3.5 Recommendations

- That the primary elements of an AFA would include:
  - Financing and Business Risk Management
  - Environmental Stewardship (farm management planning)
  - Food Safety and Traceability
  - Marketing, labelling and branding
  - National Aquatic Animal Health Partnership
  - Science, Innovation, Diversification and Value-adding
  - Wharf infrastructure
- That, as part of the AFA, DFO acknowledges the aquaculture industry as a legitimate user of harbour facilities by including the needs of the industry in the mandate of the Small Craft Harbour Branch.
- That the pre-existing working group, established under the Aquaculture Task Group of the CCFAM, continue to work on development and implementation of an AFA.
- That particular emphasis should be placed on expediting the component on business risk management programming.
- That the Science, Innovation, Diversification and Value-adding element of the AFA contain programming to provide support towards pre-commercial development of alternate species in the long term.

5.4 Alternate Species

As mentioned previously, projections indicate that the alternate-species industry could be worth close to $120 million annually within the next five to ten years, creating 200 full-time jobs for Atlantic Canadians. To ensure that this important opportunity for Atlantic Canada is not lost, applicable publicly-funded programming needs to be developed for the support of pre-commercial grow out trials. Trial results would in turn be used to verify present economic models, and serve as the basis for more accurate cost projections which will be required for private lending institutions to support commercial operations in the future.

5.4.1 Conclusion

The development of alternate finfish species for culture in Atlantic Canada has been seriously impacted by both a lack of available pre-commercial development funding and the current financial situation of the salmon farming industry. Commercial culture of these alternate species represents an important economic and employment opportunity for Atlantic Canada. To date, significant investment has been made on the part of both industry and government. This investment and opportunity stands to be lost to other jurisdictions if appropriate programming and funding is not developed to complete the work towards commercialization.

5.4.2 Recommendation

That governments work with industry to develop and approve a financial assistance strategy relating to the pre-commercial development and culture of alternate species, along the lines of Appendix B – Concept for an Alternate Species Commercialization Fund, to assist in the short term.

5.5 Requirement for Emergency Funds

The industry is in need of some form of short-term government financial intervention. This assistance is urgent as salmon producers are now entering a critical period in their operations. Traditionally, between April and June of each year, producers must place their smolt in the marine environment for the 18-month growout period.

At this time, the industry lacks the capital to stock smolt for 2005 spring entry, and many financial institutions are not willing to extend the necessary operating lines of credit to producers for grow out of smolt which are placed. Without immediate funding to correct equity which has been eroded by prior losses, the failure of many smaller independent producers and resulting sector implosion is likely. Therefore, sources of immediate financial assistance need to be pursued, potential distribution mechanisms identified, and assistance disbursed within the next four to six weeks. This assistance will help to maximize placement of smolt for the 2005 year class, effectively securing employment for Atlantic Canadians working in the salmon farming industry, as well as the support industry including feed manufacturers and processing facilities.

5.5.1 Conclusion

The Atlantic salmon farming industry is in need of some form of short-term government financial intervention. This assistance is of an urgent nature and requires action within the next four to six weeks.

5.5.2 Recommendation

Sources of immediate financial assistance need to be pursued and potential distribution mechanisms identified and assistance delivered within the next four to six weeks.

6. Summary of Conclusions and Recommendations

The current farm management system of the salmon farming industry in New Brunswick has evolved over time as a function of individual site characteristics, growth of operations and the need to change to single year class farming in an effort to manage ISA. The current system needs to evolve further, with a view to enabling market driven harvesting while maintaining biosecurity precautions already established. Development of a sustainable system in New Brunswick can serve as a model for further development of the finfish industry in other areas of Atlantic Canada where it is not an issue at present.

The Atlantic Canadian salmon farming industry faces a significant challenge in the market place in terms of foreign competition, negative publicity, and production related constraints. It does, however, have strengths, such as proximity to the main markets of the eastern US, on which it can build to ensure long-term survival and prosperity. There needs to be a concerted effort in the area of markets and marketing for the industry to be successful.

The current Memoranda of Understanding between Canada and the provinces and territories are becoming obsolete and no directed federal programs exist to aid the industry. Negotiation of an AFA, complemented by a series of Bilateral Agreements is being pursued under the direction of the CCFAM and will seek to address the main areas of updating governance and programming in support of the industry.

The development of alternate finfish species for culture in Atlantic Canada has been seriously impacted by both a lack of available pre-commercial development funding and the current financial situation of the salmon farming industry. Commercial culture of these alternate species represents an important economic and employment opportunity for Atlantic Canada. To date, significant investment has been made on the part of both industry and government. This investment and opportunity stands to be lost to other jurisdictions if appropriate programming and funding is not developed to complete the work towards commercialization.

The Atlantic salmon farming industry is in need of some form of short-term government financial intervention. This assistance is of an urgent nature and requires action within the next four to six weeks.

6.1 Immediate Recommendations:

6.1.1 Requirement for Emergency Funds

- That sources of immediate financial assistance need to be pursued, potential distribution mechanisms identified and assistance delivered within the next several weeks.

6.2 Mid to Long Term Recommendations:

6.2.1 Farm Management System

That governments and industry work collectively to facilitate the development of a system framework which enables market driven harvesting while respecting environmental and socio-economic sustainability.

6.2.2 Marketing Farmed Salmon – 2005 and Beyond

That governments assist the Atlantic Canadian salmon farming industry in the development of a marketing strategy that takes maximum advantage of the main strength of proximity to market, thus allowing access to high end fresh salmon markets, as well as looking at opportunities in potential new markets

6.2.3 The Need for an Aquaculture Framework Agreement

- That the primary elements of an AFA would include:
  - Financing and Business Risk Management
  - Environmental Stewardship (farm management planning)
  - Food Safety and Traceability
  - Marketing, labelling and branding
  - National Aquatic Animal Health Partnership
  - Science, Innovation, Diversification and Value-adding
  - Wharf infrastructure
- That, as part of the AFA, DFO confirms the aquaculture industry as a legitimate user of harbour facilities by including the needs of the industry in the mandate of the Small Craft Harbour Branch.
- That the pre-existing working group, established under the Aquaculture Task Group of the CCFAM, continue to work on development and implementation of an AFA.
- Particular emphasis should be placed on expediting the component on business risk management programming.
- That the Science, Innovation, Diversification and Value-adding element of the AFA contain programming to provide support towards pre-commercial development of alternate species in the long term.

6.2.4 Alternate Species

That governments work with industry to develop and approve a financial assistance strategy relating to the pre-commercial development and culture of alternate species, along the lines of Appendix B – Concept for an Alternate Species Commercialization Fund, to assist in the short term.

Appendix A: Terms of Reference

Task Force on Fostering a Sustainable Aquaculture Industry for Atlantic Canada Terms of Reference

Forward

Aquaculture has grown to be an important industry in many of Atlantic Canada's rural and coastal communities. Salmon farming continues to be the main driver of the aquaculture industry in the region. However, markets for Canadian farmed salmon have been negatively affected by reports released during 2004 on contaminants in salmon. There has only been limited recovery in this regard. This, coupled with the current high value of the Canadian dollar, disease related depopulations, superchill events, early maturation problems and Chilean overproduction, is having a crippling effect on the salmon farming industry. The aquaculture industry does not have access to programming, such as that available to the agriculture industry and other industries, which would assist in bringing stability to this situation.

Based on the issues identified above, the New Brunswick Department of Agriculture, Fisheries and Aquaculture (NB DAFA) and Fisheries and Oceans Canada (DFO) have agreed to the establishment of a task force, in cooperation with other government and industry partners, to review the financial challenges of the salmon farming industry, to assess it's current situation and the potential consequences on employment and economic activity and to provide both levels of government with recommendations on strategic measures to provide stability to the sector .

Although there is recognition that this exercise will focus on a quantitative assessment of the current situation and on providing recommendations on long term and sustainable solutions, there is acknowledgement that the result of this exercise could be used by parties of this task force to address more short terms needs of the industry.

Mandate

The mandate of this Task Force is:

1) To review and report on the financial state of the salmon farming industry in Atlantic Canada.
2) Identify options and provide recommendations to the Deputy Ministers of NB DAFA, DFO, NF DFA, and NS DAF regarding programming requirements to stabilize the industry.
3) Identify options and provide recommendations on initiatives to respond to market challenges.
4) Provide recommendations on requirements to enhance a sustainable salmon and alternate finfish species industry.

Activities will include, but not exclusively, the following:

1) Development of the business case for business risk management programming. This business plan should also consider the measures to be pursued by industry in collaboration with the regulatory agencies to enhance the viability of the industry in the Bay of Fundy.
2) Quantify the market effects experienced in the last few years and outline options for market initiatives and strategy.
3) Articulate and quantify the economic benefits of the industry and document the potential consequences of the current situation on employment and economic activity.

Task Force Participants

This Task Force will be co-chaired by NB DAFA and DFO, and comprised of the following representatives: *

1. New Brunswick Department of Agriculture, Fisheries and Aquaculture (2)
2. Fisheries and Oceans Canada (2)
3. Business New Brunswick (1)
4. Atlantic Canada Opportunities Agency (1)
5. Agriculture and Agri-Food Canada (1)
6. New Brunswick Salmon Growers Association (2)**
7. Nova Scotia Department of Agriculture and Fisheries (1)
8. Newfoundland and Labrador Department of Fisheries and Aquaculture (1)

* Note that additional representatives from the various agencies may also participate as required.
** Note that the NBSGA representatives will be responsible for taking the lead in communicating and seeking feedback from the industry associations in Newfoundland and Labrador and Nova Scotia.

Timelines

1. Information to be provided by the industry participants should be compiled and circulated to the task force members no later than January 21, 2005.
2. The report of the task force is to be submitted no later than February 28, 2005.

Reporting

The report and recommendations of the Task Force are to be submitted to the respective Deputy Minister's of the government agencies involved.

Deliverable

A report of the Task Force as per the following general outline:

- Scale and nature of the problem
- Consequences of the current situation on employment and economic activity
- Recommendations

The Task Force will be expected to make suitable arrangements for a formal presentation to senior Government officials.

Appendix B: Concept for an Alternate Species Commercialization Fund (ASCF)

To achieve the goals of aquaculture development of the Atlantic Provinces and to provide the economic opportunity possible from commercialization of alternate species including shortnose sturgeon, Atlantic cod, haddock and Atlantic halibut, it is proposed to establish an Alternate Species Commercialization Fund (ASCF). The ASCF would act as an initiative to increase the level of commercialization of alternate species, currently at the developmental and commercialization phases in Canada, but on a limited scale. The following is a concept for an ASCF which will be further developed by a collaborative government and industry working group to be established in the spring of 2005.

Under the envisaged ASCF, eligible species would include Atlantic cod (*Gadus morhua*), Atlantic halibut (*Hippoglossus hippoglossus*), haddock (*Melanogrammus aeglefinus*), and shortnose sturgeon (*Ascipenser brevirostrum*). Production of each of these species has demonstrated the potential for economic opportunity and has reached adequate technical development to warrant further effort towards full commercialization. The key goals of the program may include:

- Advance the current level of alternate species aquaculture in Canada toward sustainable commercial production by:
    - furthering knowledge on maturation, growth performance, stocking size, fish health, market analysis and economic viability, or in any other area identified as limiting commercialization,
    - allowing for further genetic selection to attain F3 or F4 generation production which would result in superior stocks,
    - enabling production to a limited number of operators / sites to allow for success stories and to establish a base for further industry development
    - allowing test marketing of new product,
    - supporting sea trials as grow-out for a limited number of sites/companies over Atlantic Canada;
    - support stocking of next 3-4 year classes to grow-out over a period of 6 to 7 years.
- Improve the competitiveness of the Canadian aquaculture industry.

A proposed fund would support the stocking of:

- 300,000 cod stocked per year (3-4 sites)
- 100,000 haddock stocked per year (1-2 sites)
- 100,000 halibut stocked per year (2-3 sites)
- 15,000 sturgeon stocked per year (1 site)

Grow-out period: 3 years cod/haddock; 4 years halibut and 5 years sturgeon
Total Grow out and Research Costs: $38-$45 million

Projected Costs to Raise Three Year Classes of Cod, Haddock, Halibut and Four Year Classes of Sturgeon Over a 7 year Period.

	Mix of cod, haddock, halibut and sturgeon 300,000 cod/yr, (3 yrs) 100,000 haddock/yr (3 yrs) 100,000 halibut/yr (4yrs) 15,000 sturgeon/yr (4 yrs)
Feed Operating	$13,600,000
Juveniles	$6,500,000
Labour	$6,800,000
Other, admin, fuel, etc	$3,000,000
Interest	$500,000
Sub Total	**$30,400,000**
Processing	$5,500,000
Capital	$2,500,000
Miscellaneous (10%)	$3,800,000
Grand Total	**$42,200,000**